

N61165.AR.003148
CNC CHARLESTON
5090.3a

STATEMENT OF BASIS FOR AREAS OF CONCERN 500 AND 502 CNC CHARLESTON SC
8/11/2010
TETRA TECH

STATEMENT OF BASIS FOR AREAS OF CONCERN 500 AND 502

This Statement of Basis (SB) addresses two unexploded ordnance (UXO) sites, Areas of Concern (AOCs) 500 and 502, at Charleston Naval Complex (CNC) in Charleston, South Carolina. These AOCs are included in Appendix B-8 of the Resource Conservation and Recovery Act (RCRA) Permit Renewal Application (dated March 25, 2010), which designates them as AOCs requiring Land Use Controls (LUCs). By definition, LUCs are engineering controls (such as fences, soil caps, building slabs, etc.) or institutional controls (that is, non-physical legal obligations that restrict a land's use and allowable activities) that are implemented to prevent adverse human or environmental interaction with the residual hazard.

AOC 500 is identified as the location where two AN Mk-47 (Torpex-loaded) depth bombs were presumably dropped into the Cooper River. This location is identified on the Map of U.S. Naval Air Station Charleston, SC Showing Conditions on June 30, 1945 at map grid E-10 and is noted by the following description: "Two AN Mark 47 Torpex loaded depth bombs dropped 28 January 1945." An aerial photograph showing the current approximate locations of AOCs 500 and 502 and a copy of the Map of U.S. Naval Air Station Charleston, SC Showing Conditions on June 30, 1945 are presented as Figures 1 and 2, respectively.

AOC 502, like AOC 500, was first identified as a single-point map location indicating where three 5-inch shells were dropped in the Cooper River in September 1944 (also shown on Figure 2) and noted by the following description: "Three unexploded 5" shells at about 40' below MLW dropped September 1944."

PROPOSED REMEDIES

The October 2009 Final UXO Risk Assessment and Mitigation Measures Report for Sites AOC 500 and 502 at the CNC, prepared by ADVENT Environmental, Inc., and Shaw Environmental, Inc. (ADVENT/Shaw), recommended No Further Investigation related to the search for Munitions and Explosives of Concern (MEC) associated with AOC 500 and AOC 502. MEC are defined as military munitions (both fired and unfired) that pose a potential explosive safety risk. However, the report did recommend that LUCs be implemented in the form of deed notifications/disclosures for current and future users of Piers G and T (adjacent to ACOs 502 and 500, respectively) for consideration in planning land-disturbing or submerged sediment-disturbing activities. SCDHEC approved the 2009 ADVENT/Shaw Report on January 25, 2010; thereby approving the use of LUCs at AOC 500 and AOC 502 (in lieu of other remedies) to ensure that current and future users of the piers continue to be notified of the possibility for finding MEC in these areas and continue to perform annual inspections.

As part of the LUCs, annual inspections are currently required of the owners of Piers G and T, certifying that the sediments within AOC 500 and 502 “have not been disturbed” or have “been disturbed with Authorization via LUC Area Construction Permit.” Pier G is currently owned by the Charleston Marine Manufacturing Corporation, LLC (CMMC) and leased to the Detyens Shipyard. Pier T is currently owned by the Federal Law Enforcement Training Center (FLETC), a division of the Department of Homeland Security, and leased to the CNC Redevelopment Authority (RDA). Coinciding with the closure of the Charleston Naval Base, (the prior name of CNC) the RDA was established to oversee the reuse and redevelopment of the base. Part of the CNC RDA’s mission is as a stakeholder in SCDHEC’s base-wide Voluntary Cleanup Program; and as individual portions of the base are sold to other governmental and commercial entities, purchasers may sign Voluntary Cleanup Contracts for their parcels. The Voluntary Cleanup Contracts are prepared by the South Carolina Department of Health and Environmental Control (SCDHEC). Upon completion of the annual inspections by CMMC and FLETC, copies of the annual inspection reports are submitted to the SCDHEC, United States Environmental Protection Agency (USEPA), and the Navy. Examples of the inspection forms utilized by CMMC and FLETC are presented as Attachments 1 and 2, respectively.

SITE DESCRIPTIONS

AOC 500

AOC 500 is a diamond-shaped area of approximately 66,928 square feet in the Cooper River east of the CNC bordered by Pier S, Pier T, the main channel of the Cooper River, and the shoreline. The area is located adjacent to the 1940s-era mapped shoreline of the Cooper River.

AOC 500 was initially investigated during Interim Measures (IMs) conducted following closure of the Charleston Naval Base in accordance with 1993 Base Realignment and Closure (BRAC) recommendations. The primary objective of the IM at AOC 500 was to locate, excavate, and remove identified anomalies, UXO, and associated contaminated soil. If UXO was not detected and recovered, a secondary objective of the IM was to perform a due diligence search and verify via a geophysical survey whether the ordnance had been previously removed or was located several feet below the river bottom to allow for unrestricted release of the property.

Safe Environment, Inc. (SEI) performed the IM activities, including search and diving operations, in the AOC 500 area in April 1998 using experienced Explosive Ordnance Disposal (EOD) divers with hand-held magnetometers and underwater metal detectors. Several anomalies of various sizes were detected in the area of AOC 500 (e.g., bottle caps, broken pilings, cables, cans, sheet metal, welding rods, pipe, and angle iron); however, none of the detected anomalies were found to be ordnance or ordnance related.

AOC 502

AOC 502 occupies approximately 78,506 square feet at the southwestern end of Pier G (in Zone J) and is bordered by Pier G, Pierside Street, Pier H, and the Cooper River. Water depths at AOC 502 also vary from 5 to 40 feet.

AOC 502 was also investigated during the IM conducted following closure of the Charleston Naval Base. The objective of the IM at AOC 502 was to locate, excavate, and remove identified anomalies/UXO (specifically, the three 5-inch shells reported to be dropped in the Cooper River in 1944) and associated contaminated soil. Similar to the IM at AOC 500, SEI performed the IM activities, including search and diving operations, in the AOC 502 area in April 1998 using experienced EOD divers with hand-held magnetometers and underwater metal detectors. As with the search at AOC 500, several anomalies of various sizes were detected in the area of AOC 502 (e.g., sheet metal, welding rods, wire, flanges, pipes, metal beams, etc.); however, none of the detected anomalies were found to be ordnance or ordnance related.

SUMMARY OF SITE RISK

MUNITIONS EXPLOSIVE HAZARD RISK SUMMARY

The October 2009 ADVENT/Shaw report focused on the January 1945 and September 1944 munitions events and locations of AOCs 500 and 502 (respectively) at CNC. The report acknowledged the possibility of encountering UXO, lost/misplaced munitions, or intentionally discarded munitions resulting from historical facility operations throughout CNC, including AOCs 500 and 502, during intrusive activities; however, no construction activities, other than periodic dredging, are currently planned for either AOC 500 or 502. Contact with the depth bombs believed to be at AOC 500 and/or the shells believed to be at AOC 502, as well as other potential MEC, should be anticipated if any intrusive construction activities are planned for AOC 500 or 502 in the future. MEC from historical operations at the CNC are typically not visible at the surface and in fact may become buried over time by subsurface soil or river sediment.

The only intrusive activity currently expected to occur at AOC 500 or AOC 502 is periodic dredging. The risk from dredging and a hypothetical situation where pile driving would be a part of a future construction project were evaluated in accordance with the Office of the Naval Chief of Naval Operations Instructions (OPNAVINST) 3500.39B, Operational Risk Management, and the results of the evaluation included as part of the October 2009 ADVENT/Shaw report. This evaluation concluded that the potential for striking a depth bomb or projectile, if present, in the areas of AOC 500 or 502 is currently considered to be low. The evaluation also concluded that if pile driving was to take place in either area, the probability of explosive hazards being encountered would still be considered low due to the likelihood that the ordnance

may no longer be present at the AOC, the water depth provides a protective shielding in the event of a detonation, and pile driving would not likely cause these types of ordnance to detonate.

ECOLOGICAL RISK ASSESSMENT SUMMARY

Potential ecological risks attributed to the January 1945 and September 1944 munitions events at AOC 500 or 502 were not addressed in the October 2009 ADVENT/Shaw Report.

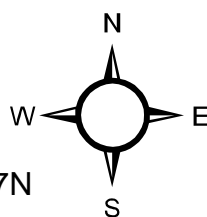
ANTICIPATED IMPACTS OF CLEANUP ON THE LOCAL COMMUNITY

No significant health risks or impacts to the local community are anticipated with the proposed No Further Investigation and LUC remedies under current and likely future land use scenarios.

Figure 1 – Aerial Photograph Showing the Approximate Locations of AOCs 500 and 502



0 650 1,300 2,600 3,900 5,200
Feet

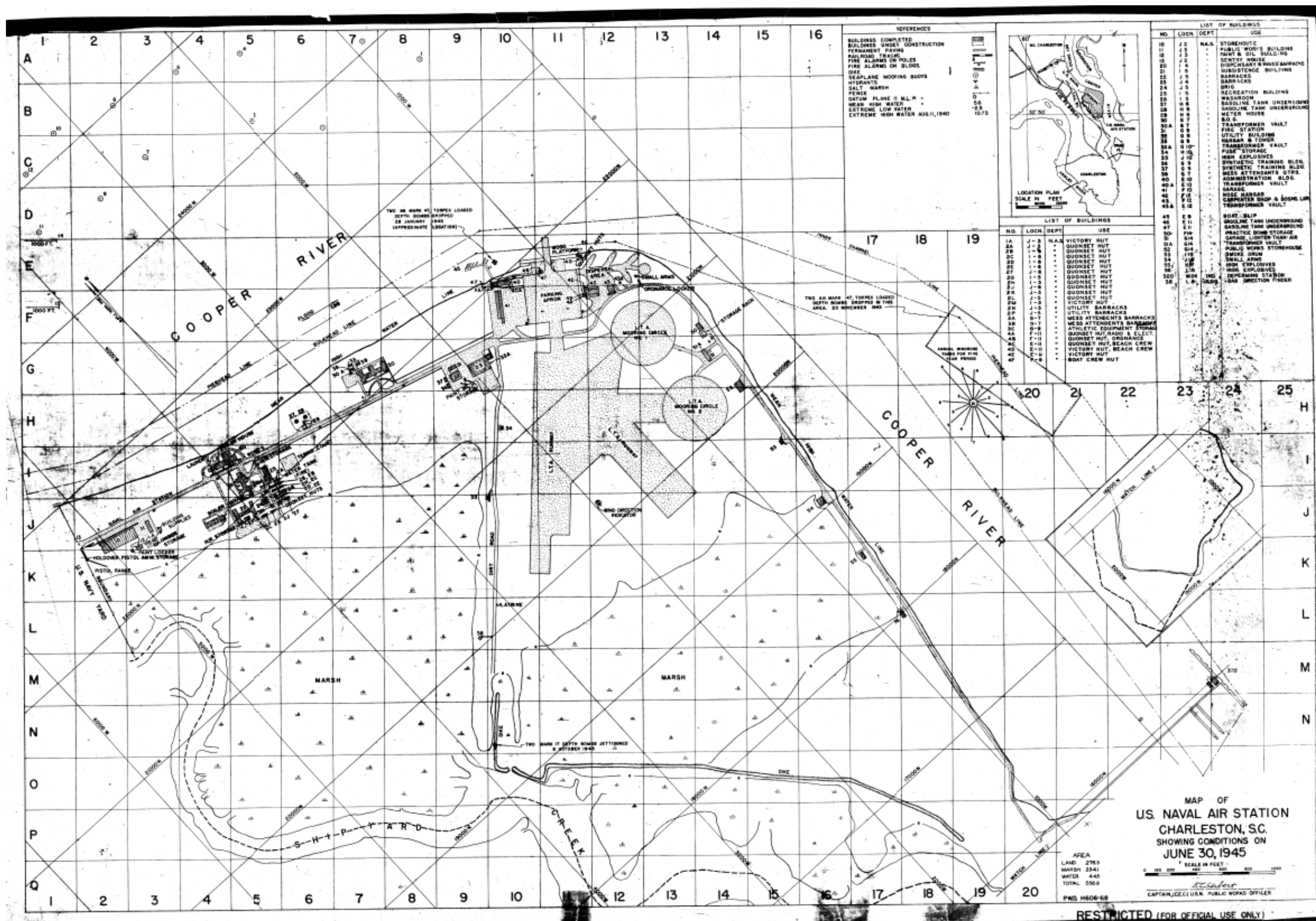


Projection: Clarke 1866 UTM Zone 17N
Map Scale: 1:26,276

**Approximate location of
AOCs 500, 501, 502, and 503
Former Charleston Naval Complex**

Figure 2 – Map of U.S. Naval Air Station, Charleston, S.C., Showing Conditions on June 30, 1945

Document Source:
RDA Plan Room, former Charleston Naval Complex



Attachment 1 – Example of CMMC Annual LUC Inspection Report for AOC 502

Annual Land Use Control (LUC) Compliance Certification

Charleston Naval Complex

EPA I.D. No SC0170022560

Property Owner: CMMC, LLC

Check months completed:

Property Conveyed Since Last Inspection?

___ April ___ May ___ June (for semi-annual inspections) AND ___ October ___ November ___ December (write in year) _____

Site (SWMU site numbers through 499; AOC site numbers 500 and higher)	Restricted Media		Use Restrictions Communicated in Deed	Any LUC Violations Were Reported Within 3 Business Days of Discovery	Explanation of Actions Taken or to be Taken Provided Within 10 Days of Discovery	Groundwater Not Being Used	Monitoring Wells Not Disturbed	Land Not Being Used for Residential Use	Land Not Being Used for Recreational Use	Land Not Being Used for Agricultural Use	Soils Not Disturbed or Disturbed with Authorization via LUC Area Construction Permit	Engineering Controls Maintained	Landfill Cover Not Disturbed or Disturbed with Authorization via LUC Area Construction Permit	Zone	Notes (restrictions) W = groundwater use restriction; U = use restriction; E = engineering controls; D = digging/excavation restriction
	Groundwater	Soil													
			"Y" if Yes; "N" if No; "NA" if not applicable	"Y" if LUC has been maintained. "N" if LUC has not been maintained (explain in Comments section on page 2). Shading indicates particular LUC is not applicable.											
21/54	•	•												E	W, U, E, D
25/70	•	•												E	W, U, E, D
65/544/546	•	•												E	W, U, E, D
83/84/574	•	•												E	W, U, E, D
87/172/564	•	•												E	W, U, E, D
102/590	•	•												E	W, U, E, D
563	•	•												E	W, U, E, D
723	•	•												E	W, U, E, D
502														J	D
LUC Area (Zone E)	•	•												E	W, U, E, D Semi-annual

Diagonally split cells indicate a requirement for semi-annual inspections: April-June and October-December.

Annual Land Use Control (LUC) Compliance Certification
Charleston Naval Complex
EPA I.D. No SC0170022560

Property Owner: **CMMC, LLC**

Check Type of Inspection: ___ Drive-through ___ Walk-through

I, the undersigned, hereby certify that I am an authorized representative of **CMMC, LLC** and that the above described land use controls have been complied with for the calendar year _____. Any known deficiencies and completed or planned actions to address such deficiencies are described in the attached explanation of deficiencies. I have also attached a map to this certification showing the sites and the LUCs in place at each site.

Signature _____ Relationship to Property Owner _____ Date _____

Printed Name _____ Phone Number (_____) _____

Address _____ City _____ Zip Code _____

Comments: (attach additional sheets as needed)

A map is attached showing the LUCs in place at each site.

Mail original completed certification to SCDHEC (WM), with copies to SC DHEC (SAR), US EPA, and the US Navy at the below addresses:

SCDHEC (Waste Management Division)

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management
Attn: Director, Waste Management Division
2600 Bull Street
Columbia, SC 29201

SCDHEC (Site Assessment & Remediation Division)

South Carolina Department of Health and Environmental Control
Bureau of Land and Waste Management
Attn: Director, Site Assessment & Remediation Division
2600 Bull Street
Columbia, SC 29201

US EPA

US Environmental Protection Agency Region 4
Federal Facilities Branch
Attn: Charleston Naval Complex RPM
61 Forsyth Street SW
Atlanta, GA 30303-8909

US Navy

BRAC Program Management Office Southeast
Attn: Charleston Naval Complex RPM
4130 Faber Place Dr Ste 202
North Charleston, SC 29405

Attachment 2 – Example of FLETC Annual LUC Inspection Report for AOC 500

Annual Land Use Control (LUC) Compliance Certification
Charleston Naval Complex
EPA I.D. No SC0170022560

Property Owner: **FLETC**

Check months completed:

Property Conveyed Since Last Inspection?

___ April ___ May ___ June (for semi-annual inspections) AND ___ October ___ November ___ December (write in year) _____

Site (SWMU site numbers through 499; AOC site numbers 500 and higher)	Restricted Media		Use Restrictions Communicated in Deed	Any LUC Violations Were Reported Within 3 Business Days of Discovery	Explanation of Actions Taken or to be Taken Provided Within 10 Days of Discovery	Groundwater Not Being Used	Monitoring Wells Not Disturbed	Land Not Being Used for Residential Use	Land Not Being Used for Recreational Use	Land Not Being Used for Agricultural Use	Soils Not Disturbed or Disturbed with Authorization via LUC Area Construction Permit	Engineering Controls Maintained	Landfill Cover Not Disturbed or Disturbed with Authorization via LUC Area Construction Permit	Zone	Notes (restrictions) W = groundwater use restriction; U = use restriction; E = engineering controls; D = digging/excavation restriction
	Groundwater	Soil													
9	.	.												G & H	W, U, E, D Semi-annual
19, 20, 121, 649, 650, 651	.	.												H	W, U, E, D Semi-annual
724	.	.												G & H	U, D
196	.	.												H	W, U, E, D
17	.	.												H	W, U, E, D Semi-annual
680	.	.												I	E, U
722	.	.												I	W, D, U
500														J	D

Diagonally split cells indicate a requirement for semi-annual inspections: April-June and October-December.

Annual Land Use Control (LUC) Compliance Certification
Charleston Naval Complex
EPA I.D. No SC0170022560

Property Owner: FLETC

Check Type of Inspection: ___ Drive-through ___ Walk-through

I, the undersigned, hereby certify that I am an authorized representative of **FLETC** and that the above described land use controls have been complied with for the calendar year _____. Any known deficiencies and completed or planned actions to address such deficiencies are described in the attached explanation of deficiencies. I have also attached a map to this certification showing the sites and the LUCs in place at each site.

Signature _____ Relationship to Property Owner _____ Date _____

Printed Name _____ Phone Number (_____) _____

Address _____ City _____ Zip Code _____

Comments: (attach additional sheets as needed)

A map is attached showing the LUCs in place at each site.

Mail original completed certification to SCDHEC (WM), with copies to SC DHEC (SAR), US EPA, and the US Navy at the below addresses:

<u>SCDHEC (Waste Management Division)</u> South Carolina Department of Health and Environmental Control Bureau of Land and Waste Management Attn: Director, Waste Management Division 2600 Bull Street Columbia, SC 29201	<u>SCDHEC (Site Assessment & Remediation Division)</u> South Carolina Department of Health and Environmental Control Bureau of Land and Waste Management Attn: Director, Site Assessment & Remediation Division 2600 Bull Street Columbia, SC 29201
<u>US EPA</u> US Environmental Protection Agency Region 4 Federal Facilities Branch Attn: Charleston Naval Complex RPM 61 Forsyth Street SW Atlanta, GA 30303-8909	<u>US Navy</u> BRAC Program Management Office Southeast Attn: Charleston Naval Complex RPM 4130 Faber Place Dr Ste 202 North Charleston, SC 29405